PEACE/WILLISTON
FISH & WILDLIFE
COMPENSATION
PROGRAM

Peace/williston Fish and Wildlife Compensation Program Annual Report 2001/2002

BCHydro

BRITISH COLUMBIA

B. G. Blackman and M. D. Wood
June 2002

PWFWCP Report No. 264

The Peace/Williston Fish & Wildlife Compensation Program is a cooperative venture of BC Hydro and the provincial fish and wildlife management agencies, supported by funding from BC Hydro. The Program was established to enhance and protect fish and wildlife resources affected by the construction of the W.A.C. Bennett and Peace Canyon dams on the Peace River, and the subsequent creation of the Williston and Dinosaur Reservoirs.

Peace/Williston Fish and Wildlife Compensation Program, 1011 Fourth Ave. 3rd Floor, Prince George B.C. V2L 3H9

Website: *www.bchydro.bc.ca/environment/initiatives/pwcp/*

This report has been approved by the Peace/Williston Fish and Wildlife Compensation Program Fish Technical Committee.

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PEACE /WILLISTON FISH AND WILDLIFE COMPENSATION PROGRAM

ANNUAL REPORT 2001/2002

STEERING COMMITTEE:

Uli Bergmann (BC Hydro – Chair
Dave Cattanach (BC Hydro)
Ted Down (MWLAP)
John Metcalfe (MWLAP)

FISH TECHNICAL COMMITTEE

Cynthia Powell (BC Hydro)– Chair
Nick Baccante (WLAP)
Bob Westcott (BC Hydro)
Ted Zimmerman (MWLAP)
Ken Ashley (WLAP - Technical Advisor)

WILDLIFE TECHNICAL COMMITTEE

Alan Chan-McLeod (BC Hydro) Chairman
John Elliott (WLAP) –
Doug Heard (WLAP)
Ed Hill (BC Hydro)

FISH BIOLOGISTS:

Brian Blackman (BC Hydro) - Senior Biologist
Arne Langston (BC Hydro)
Randy Zemlak (BC Hydro)

WILDLIFE BIOLOGISTS:

Mari Wood (BC Hydro) - Senior Biologist
Fraser Corbould (BC Hydro)

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PROGRAM ADMINISTRATION

Membership on the Steering Committee (SC) remained the same but Uli Bergmann has replaced John Metcalf as the chair of the Steering Committee . Membership on the Wildlife Technical Committee (WTC) remained the same as the previous fiscal, with Alan Chan-McLeod (BCH) as chairman. Cynthia Powell replaced Nick Baccante as the chair of the Fish Technical Committee (FTC) and Alan Laidlaw replaced Bob Westcott as a BCH representative on the FTC.

Fish biologists Brian Blackman, Arne Langston, and Randy Zemlak, and wildlife biologists Mari Wood, and Fraser Corbould, continued as full-time staff responsible for administering, managing, and conducting program projects and activities.

Administrative activities included preparation of the 2000/2001 Annual Report (Wood and Blackman 2001), tracking program expenditures, managing contracts, preparing quarterly reports on program activities, preparing performance review plans, and updating staff safety training. A number of consulting firms and contractors were employed to undertake work on a variety of projects.

PROGRAM PLANNING

The Fish Program held two in-person meetings and three conference calls to discuss the current year's projects and finances, and prepare a budget for 2002/03 for submission to the SC. The Wildlife Program held two in-person meetings and one conference calls to do the same. Senior biologists from both the Fish and Wildlife programs attended the annual January SC meeting to present the 2002/03 budget to the SC. Informal meetings were held with individuals, consultants, and stakeholder representatives to discuss current and potential projects for the future

PUBLIC CONSULTATION

Program Staff

Fish biologists arranged local television coverage of the release of kokanee from the class room kokanee project and there was another short piece on the classroom / incubation portion of the project. Staff participated in a radio interview with CKMK in Mackenzie which covered Program activities for the year. An article on the Dina Lakes program was carried in the Mackenzie Times. Program staff provided information to provincial agencies to help develop guidelines for land use planning. Program staff ran a fish identification / fish capture station and another station was conduction on water quality measurements at the Dina Creek field day.

Wildlife biologists delivered two slide-show presentations and attended one convention this year. Fraser Corbould presented an overview of Wildlife Program activities to the Prince George Naturalists Club in May. Corbould also presented results from the Fisher Habitat Use Project during a Slocan-sponsored workshop on Environmental Projects in the Mackenzie Forest District in March. In March, Mari Wood manned the booth at the Guide-Outfitters Association convention in Victoria. The PWFWCP donated a Live Sheep Capture excursion to the GOABC auction, which raised $1,100 for GOABC. Wood also organised a wildlife identification contest for GOABC members.

The PWFWCP and specific fish and wildlife projects were discussed through informal meetings and talks with industry representatives, club members, guide outfitters, trappers, contractors, students, tourists, and other government agencies. Detailed project information and technical reports were also discussed with, and disseminated to consultants, biologists, and researchers.

Program biologists also contributed to PWFWCP public consultation activities handled by BC Hydro's Public Affairs department (see below) including drafting and editing projects articles for *Natureline* (the PWFWCP's official newsletter), reviewing draft text and layout of the PWFWCP brochure, and drafting periodic Project Update sheets. Options for placement of digital copies of PWFWCP technical reports on the program's website were explored and a contract for completion of this work is in development. Biologists also provided input to the development of the 2001/02 Public Consultation Plan and participated in the development of a 5-Year Public Consultation / Communications Plan..

BC Hydro Public Affairs

Advertisements for the PWFWCP were placed in the 2001/2002 Freshwater Fishing Regulations Synopsis, and the Hunting and Trapping Regulations Synopsis. Drafts of Natureline and the Program brochure were completed. Program updates were distributed to stakeholders and letters were sent to stakeholders during special events.

FISH PROGRAM

Brian Blackman

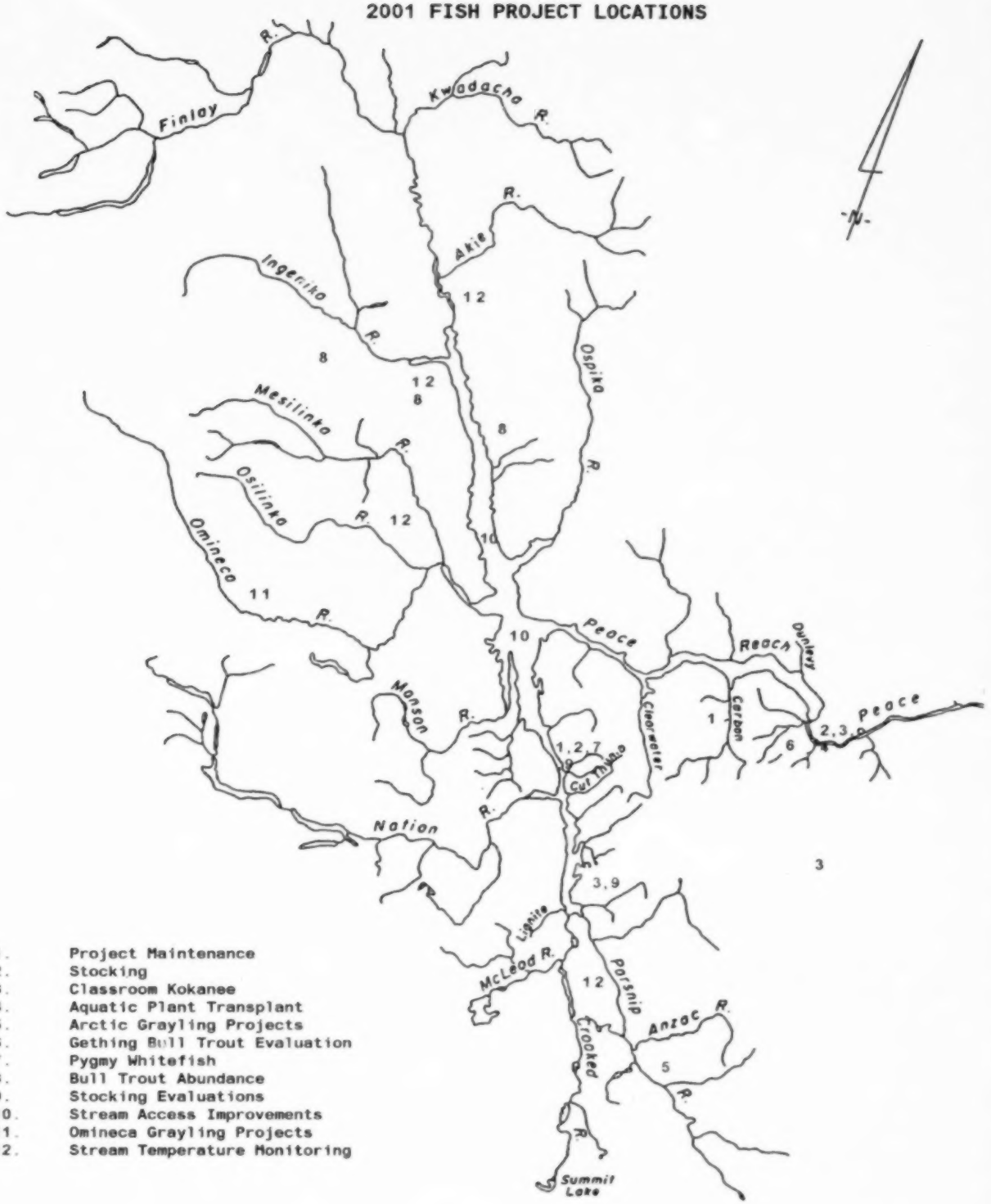
2001/2002 PROJECT LIST

Map	Task #	Project	Location
1	01-01	Project Maintenance	Parsnip
2	01-02	Stocking Program	Watershed
	01-03	Report Writing Previous Years	Office
3	01-04	Classroom Kokanee * (DFO)	Watershed
4	01-05	Dinosaur Reservoir Aquatic Plant Transplant	Dinosaur
5	01-06	Table and Anzac Arctic grayling Project	Parsnip
6	01-07	Gething Bull Trout Evaluations	Dinosaur
7	01-08	Dina Lake #1 Pygmy Whitefish Study	Parsnip
8	01-09	Bull Trout in the Finlay Reach (WLAP & UNBC)	Finlay
9	01-10	Small Lake Stocking Evaluations	Watershed
		STRATEGIC ENRENCHMENT FUND PROJECTS	
10	01-11	Stream Access Improvements	Reservoir
	01-12	Fish Resources Catalogue (UBC)	Office
	01-13	Arctic grayling Action Plan	Office
11	01-14	Omineca Adult Arctic grayling Distribution	Finlay
11	01-15	Distribution of grayling fry in the Omineca (FRBC)	Finlay
	01-16	UNBC Research Grant	Office
	01-17	Stocking History Review	Office
12	01-18	Williston Reservoir Stream Temperature Monitoring (WSC)	Watershed
	01-19	Equipment from Entrenchment Fund	Watershed

(Co-operative projects with:)

DFO Dept of Fisheries and Oceans, Habitat Conservation Trust Fund, Donahue Forest Products, Fletcher Challenge Canada, Mackenzie Fish and Game Association, Canfor Ltd., BC Hydro office at the W.A.C. Bennett Dam Lions club of Hudson's Hope and the Hudson's Hope Rod and Gun Club.
UBC University of British Columbia – part of this project was graduate student funded by PWFWCP
WLAP Ministry of Water Land and Air Protection - funded by PWFWCP
UNBC University of Northern B.C.
WSC Water survey of Canada
FRBC Forest Renewal BC and Canfor

2001 FISH PROJECT LOCATIONS



1. Project Maintenance
2. Stocking
3. Classroom Kokanee
4. Aquatic Plant Transplant
5. Arctic Grayling Projects
6. Gething Bull Trout Evaluation
7. Pygmy Whitefish
8. Bull Trout Abundance
9. Stocking Evaluations
10. Stream Access Improvements
11. Omineca Grayling Projects
12. Stream Temperature Monitoring

PROJECT SUMMARY

1. PROJECT MAINTENANCE (#01-01)

Objective: (1) To provide maintenance of the Dina Creek and Dina Lake #3 inlet spawning habitat improvement projects. (2) To monitor numbers and locations of returning kokanee and their spawning sites. (3) To remove the Windy Point Upwelling Station.

2001/02 (Year 6 of ongoing): (1) In Dina Creek the coarse fish barrier was adjusted, some debris was removed in preparation for the rainbow trout spawners. Access to the inlet stream of Dina Lake #3 was also improved. Project biologists assisted with the Dina Creek Field Day, where local students learn about stream ecology. (2) Reports were received of spawning kokanee in Carbon Creek, but none were observed by staff. Carbon Creek sidechannel was blocked by a minimum of five large beaver dams and it would have been impossible for kokanee to gain access to the channel. Kokanee were observed in the lower portion of Dunlevy Creek. (3) Windy Point upwelling station was deactivated.

2. STOCKING PROGRAM (#00-02)

Objective: To provide funds to cover the costs to BC Fisheries for the rearing and release of fish for PWFWCP projects.

2000/01 (Year 11 of ongoing): This year, 9500 rainbow trout were released into four small lakes and 7500 brook trout were released into two lakes. Dinosaur Reservoir was stocked with 5,000 catchable (200g +) rainbow trout, which were fin clipped as part of an ongoing evaluation of stocking in the reservoir.

3. REPORT WRITING PREVIOUS YEARS (#00-03)

Objective: To provide staff time and funds for the completion and distributions of reports from previous years.

2001/02 (Year 5 of ongoing): Reports completed this year include:

- No. 236 Davis River bull trout radio telemetry studies, 1999 final report. D.S. O'Brien and J.T. Zimmerman. April 2001. 21pp plus appendices.
- No. 237 1998 Arctic grayling Surveys in the Table Anzac and Parsnip Rivers. B.G. Blackman and M.J. Hunter. April 2001 39pp plus appendices.
- No. 238 1999 Dinosaur Reservoir Creel Survey Report. J Joslin. May 2001 19pp plus appendices. No. 239 Fisheries Resources of Williston Reservoir Twenty Years after impoundment. B.G. Blackman. April 1992. 35 pp plus appendices.
- No. 241 A strategic plan for the restoration of Arctic grayling in the Williston Reservoir Watershed. B.G. Blackman. June 2001. 16 pp.
- No. 242 The Limnology of Williston Reservoir. Stockner J.G., A.R. Langston and G. Wilson. May 2001. 51 pp + appendices.

- No. 245 Pygmy whitefish studies on Dina Lake #1, 2000. J.D. McPhail and R.J. Zemlak. October 2001. 36pp plus appendices.
- No. 246 Dina Lake #1 pygmy whitefish (*Prosopium coulteri*) study, stomach contents analysis, 2000. M.D. Stamford. October 2001. 9pp plus appendices.
- No. 248 Mitochondrial and microsatellite DNA diversity throughout the range of a cold adapted freshwater salmonid: phylogeography, local population structure, and conservation genetics of Arctic grayling (*Thymallus arcticus*) in North America. M.D. Stamford. October 2001. 90pp.
- No. 254 The distribution and relative abundance of Arctic grayling (Thymallus arcticus) in the Parsnip, Anzac and Table rivers. B.G. Blackman. February 2002. 15 pp.
- No.255 Notes on the use of clove oil as an anaesthetic for northern fish species and for the surgical implantation of radio transmitters into Arctic grayling (*Thymallus arcticus*). B.G. Blackman. February 2002. 5pp.
- No. 256 Williston Reservoir 1989 Creel Report. B.G. Blackman and K. Newsholme. May 1993. 26pp plus appendices.
- No. 257 2000 Dinosaur Reservoir Creel Survey Report. J. Joslin. June 2001. 22pp plus appendices.
- No. 258 An informative summary on Arctic grayling from the Williston Reservoir Watershed with data gap analysis and recommendations. B.G. Blackman. February 2002. 26pp
- No. 259 Dinosaur Lake aquatic plant enhancement potential. AIM Ecological Consultants Ltd. May 2000. 26pp
- No. 260 Peace Williston Fish and Wildlife Compensation Program Summary of Fisheries Activities 1988 – 1997…36pp.
- No. 261 Williston Reservoir fish assessments 2000, pelagic netting summary. R.A. Pillipow and A.R. Langston. March 2002. 12pp plus appendices. .
- No. 263 Radio Telemetry Studies of Arctic Grayling Migrations to Overwinter, Spawning and Summer Feeding Areas in the Parsnip River Watershed 1996-1997. B.G. Blackman April 2002. 26 pp plus appendices

- 1997 Arctic grayling habitat utilization studies in the Table and Anzac Rivers has been completed and is under review.
- PWFWCP Summary of Fisheries Activities 1988- 1997,was approved but has been re formatted, additional information included and is now in final review.
- A final draft of the Development of a Premier Northern River Fishery: The Mesilinka River 1992-99, has been completed and is waiting final approval.

4. CLASSROOM KOKANEE (#01-04)

Objective: To assist with a program to raise kokanee in a classroom environment, as an educational tool, in Mackenzie, Hudson's Hope, Dawson Creek and Ft. St. John schools.

2001/02 (Year 6 of ongoing): This project was conducted in conjunction with the local School District, Department of Fisheries and Oceans, Habitat Conservation Trust Fund, Donahue Forest Products, Fletcher Challenge Canada, Mackenzie Fish and Game Association, Canfor Ltd., BC Hydro office at the W.A.C. Bennett Dam, Lions Club of Hudson's Hope, and the Hudson's Hope Rod and Gun Club. In 2001, kokanee reared in classrooms the previous winter were released into local streams, art contest winners were selected and prizes awarded. Unfortunately, kokanee

eggs were not available this year from Meadow Creek so permits were obtained and eggs from Dunlevy Creek kokanee were collected and fertilised. The eggs were provided to the schools in Ft. St. John, Hudson's Hope, Chetwynd and Mackenzie.

5. DINOSAUR RESERVOIR AQUATIC PLANT TRANSPLANT (#01-05)

Objective: To examine the potential of establishing aquatic plants in Dinosaur Reservoir. The establishment of aquatic plants should reduce entrainment problems, increase littoral productivity and benefit most fish species found in the reservoir. The year 2001 project was to test plant four species of emergents (7,000 plants) and several species of local submergent plants (250 plants) to determine if aquatic vegetation can be established in Dinosaur Reservoir. In addition a fish assessment was conducted to use as a baseline to measure the success for future enhancement activities.

2000/01 (Year 2 of 3): Over 7000 emergent seedlings were planted in the drawdown zone at Johnson Creek embayment and near the boat launch. These plants, were produced from seeds collected from the Peace River floodplain the previous fall. Some emergent species were planted in Johnson Bay in early July. Half of these plants were put in enclosures. When the bulk of the sedges were planted in August all the plants in enclosures were alive and all the plants that had not been protected were gone. We assumed these plants were eaten by the local wildlife, so a four foot high fence was placed around the August plantings. The sedges from the previous year that were growing near the boat launch did not survive the winter and judging from the amount of woody debris in the area may have died because of physical damage caused by the shifting debris. The fish assessment via boat shocker and trap nets captured about 250 rainbow trout and a equal number of mountain whitefish. In addition, nine juvenile lake trout were captured. Many of the rainbow trout were capture near areas with woody debris accumulations so we will investigate the potential of anchoring woody debris at some test sites next year.

6. TABLE AND ANZAC ARCTIC GRAYLING (#01-06)

Objective: This years objectives were to: (1) continue collection of long term, year round stream water temperature data; (2) gather relative abundance and distribution data on juvenile and young of the year Arctic grayling from the Parsnip River; (3) continue adult abundance estimates from index sites in the Table and Anzac rivers; (4) continue to gather information on growth and rearing densities of grayling fry from index sites on the Table and Anzac rivers.

2001/02 (Year 7 of ongoing): (1) The data from ten thermographs installed in the Parsnip River and its tributaries was downloaded in June and October. (2) Thirty sites over a 20-kilometre section of the Parsnip River were sampled using beach seines. The number of young of the year and one year old grayling captured per kilometre was very similar to the 1998 and 2000 surveys. This methodology will be used as an index of recruitment in these and other systems. (3) Adult grayling counts in the Table River were comparable to previous years (1995, 1998 & 2000) in the four kilometre index site in upper river but were more variable in the mid-river sites. The lower Table River site was dropped this year because of the low (<10) counts obtained in previous years . The lower site on the Anzac River was also not sampled because of low previous counts. The four upper sites had significantly fewer grayling than were counted in 1998. (4) Two electrofishing index sites on the Anzac River yielded 0 and 10 grayling fry / km. The two sites on the Table river

yielded 64 and 4 fry per km. The same sites yielded 37 and 17 grayling fry / km respectively in 1998.

7. GETHING BULL TROUT EVALUATION (#01-07)

Objective: To determine if a self sustaining population of bull trout has been created in Gething Creek and recommend program activities for further evaluations.

2001/02 (Year 3 of 3): In 2001, only one year old bull trout, which were assumed to be a result of the 1999 adult transplant were captured. No young of the year were captured nor were there fish from older age classes captured. This suggests that although the spawning of the transplanted adults has been successful the resulting fry appear to rear for two summers in the stream and then move downstream to the reservoir. It does not appear that any significant number of bull trout have remained in the stream to establish a resident population. Rainbow trout fry were abundant at all sites. Rainbow trout have moved out of Wright Lake where they have been stocked since 1991. They are found in high numbers in upper Gething Creek, and are present in Dowling and Gaylard Creek. The rainbow trout in Gaylard are probably a result of stocking by the Peace Canyon Hatchery in 1980's. No estimates have been made of the actual survival rates and numbers of 1+ parr migrating to Dinosaur Reservoir.

8. DINA LAKE #1 PYGMY WHITEFISH STUDY (#01-08)

Objective: To study Pygmy whitefish in a closed lake system in order to gain a better understanding of the biology of this species.

2001/02 (Year 2 of 2) In 2001 work continued on Pygmy whitefish, the study focused on gathering life history data and habitat use within the lake. Some of the key life history data focused on size ranges of fish by sex, overall age structure of the population, diet, age at maturity, health (parasite presence), fecundity counts, and field identification. Some of the habitat characteristics measured were the depth of capture and the oxygen and temperature constraints throughout the summer months. As well efforts are continuing to determine which areas of the lake this species utilises and to find reliable non lethal methods to capture Pygmy whitefish.

9. DAVIS RIVER BULL TROUT UTILISATION STUDY (#01-09)

Objective: To (1) describe use by bull trout spawning in selected Final Reach tributaries; (2) conduct experiments on incubation success across watershed types (3) establish index sites for long term monitoring of bull trout spawning runs, (4) collaborate with partners of the Mackenzie Sensitive Fish Species Working group to meet project goals.

2001/02 (Year 4 of 5) (1 & 2) Adult spawner counts were conduced on the Davis and Chowika Rivers and unsuccessful attempts were made to find the location of bull trout spawners in the Swannell River. (3) Fertilized bull trout eggs have been placed at several locations in Davis and Chowika rivers to test the effects of groundwater and temperature regimes on bull trout egg development and survival.. Laboratory studies have also been conducted to determine the effects of different temperature regimes on bull trout egg development and survival. (4) The Mackenzie

sensitive working group has been disbanded. This project although funded by PWFWCP was carried out primarily by WLAP and UNBC staff.

10. SMALL LAKE STOCKING EVALUATIONS (#01-10)

Objective: To evaluate the fish populations of Lions, Pothole, Simpson, and Dina # 3 and #7 lakes. This project will examine all native and introduced fish populations and seek out enhancement opportunities in each system.

2001/02 (Year 3 of 3) Surveys were conducted on Lions, 43 mile Pothole, Dina #3 & #7 and on Simpson Lake. The preliminary reports have been completed.

01/02 STRATEGIC ENTRENCHMENT FUND PROJECTS

11. STREAM ACCESS IMPROVEMENTS (#01-11)

Objective : To develop a prescription for fish access from the reservoir into systems which have been identified as having potential fish access problems as a result of reservoir drawdown.

2001/02 (Year 2 of 4) Surveys were conducted in the fall of 2001 and a protocol document has been produced which outlines methods to document and evaluate potential stream access problems.

12 WILLISTON AND DINOSAUR WATERSHED FISHERIES RESOURCES CATALOGUE (#01-12)

Objective: To catalogue all available historical data on fish stocks from the Williston and Dinosaur watersheds and have it easily accessible through a user friendly P.C. Program.

2001/02 (Year 2 of 2) Limited progress has been made on the project this year, but it will be carried over to the 2002/03 year.

13. ARCTIC GRAYLING ACTION PLAN (# 01-13)

Objective: To provide an action plan to identify data gaps, life history, distribution, status and interactions with other species as outlined in the Fish Strategic Plan, and provide recommendation for future PWFWCP activities.

2001/02 (Year 1 of 1): The delivery of this project was changed from the original proposal. The Fish Technical Committee has developed a first draft of this document, based on information provided in a number of documents developed by program staff for the management, restoration and enhancement of this species. The document outlines activities over the next five years that will be directed towards the protection of the existing stocks, enhancements directed towards existing stocks and the re establishment of stocks that have be extirpated. This new plan will act as a template for any additional species action plans.

14. OMINECA ADULT ARCTIC GRAYLING DISTRIBUTION (#01-14)

Objective: To determine if the distribution of adult arctic grayling in the Omineca watershed

2001/02 (Year 1 of 1): Unfortunately high water and poor weather conditions during the time of the survey did not permit the use of underwater counts (snorkel surveys). Angling surveys were conducted and the upstream distribution of adult grayling was determined in the mainstem and a number of the larger tributaries. Time was also spent identifying sample sites for the grayling fry distribution survey (#01-15).

15. DISTRIBUTION OF GRAYLING FRY AND IDENTIFICATION OF CRITICAL HABITATS IN THE OMINECA RIVER (#01-15)

Objective: (1) To determine of the distribution of arctic grayling fry (0+,1+ and 2+) in the Omineca River, and to describe the extent and limits of suitable habitats for the three life history stages. (2) To map potential spawning areas for possible future studies based on the distribution of 0+ grayling and compare and contrast habitat features used in the Omineca with those described in the Table/Anzac study.

2001/02 (Year 1 of 1): This project was conduced in conjunction with a 1:50;000 overview inventory funded through FRBC and administered by Canfor. One hundred and five electrofishing sites were conducted on the Omineca River and its tributaries. The sites covered approximately 16,000 m of river bank and captured 280-grayling fry. This data was combined with the data from 50 sites surveys through the FRBC project. The information has been mapped, tabulated and presented to the local LRMP to provide needed information for the protection of critical habitats for this species. This project has provided an excellent data base on the distribution of grayling fry in this large watershed.

16. UNBC RESEARCH GRANT (#01-16)

Objective: To develop an agreement with the University of Northern British Columbia to provide funding on a yearly basis to a UNBC graduate student to do research into a pertinent fisheries topic in the Program area.

2001/02 (Year 1 of 2) A tentative agreement has been developed that addresses the requirements of all parties concerned. This document is awaiting approval, and may undergo further modifications before the final agreement is signed.

17. STOCKING HISTORY REVIEW (#01-17)

Objective: Produce a PWFWCP format report summarising all fish stocking history within the Compensation Program's area of activity.

2001/02 (Year 1 of 1) Progress has been made on this project but a first draft has not yet been produced.

18. WILLISTON WATERSHED STREAM TEMPERATURE MONITORING (#01-18)

Objective: To work in conjunction with Water Survey of Canada, BC Hydro and Environment Canada to have 10 temperature sensors added to the current hydrometric stations that exist on rivers entering Williston Reservoir.

2001/02 (Year 1 of ongoing) The temperature sensors have been purchased and will be installed by Water Survey of Canada in the spring of 2002.

19. EQUIPMENT FROM THE ENTRENCHMENT FUND (#01-19)

Objective: To purchase new equipment from the entrenchment fund

2001/02 (Year 1 of 1) New thermographs, trap nets, tow nets, cameras and a new inflatable boat were all purchased to replace old worn out or obsolete equipment. In addition a 27 ft boat has been purchased to conduct work on the reservoirs.

FISH PROGRAM – FINANCIAL SUMMARY

The Fish Program budget for 2001/2002 was $605,000 and expenditures during the fiscal year totalled $565,380. Projects accounted for $358,776 or 63 % of the expenditures and 50% of staff time. Administration costs were $118,148, (21%) which was slightly higher than expected because of increased staff time commitments (28%). Planning costs were $66,509 (12%) and Public Consultation costs were $21,948 or 4% of expenditures. Approximately $422,725 had been budgeted for entrenchment fund projects but this year costs were $339,887.

Staff time was less than what had been budgeted because the auxillary position was only available for part of the year. To compensate for the loss of approximately 100 auxillary days staff worked an additional 67 days. Staff time commitments were 28% for administration, 17% for planning 5% Public Consultation and 50% for projects (including entrenchment fund projects).

Monies spent from the Entrenchment Fund to date include $171,480 in 00/01 and $565,380+$339,887-$605,000= $300,267 this year.

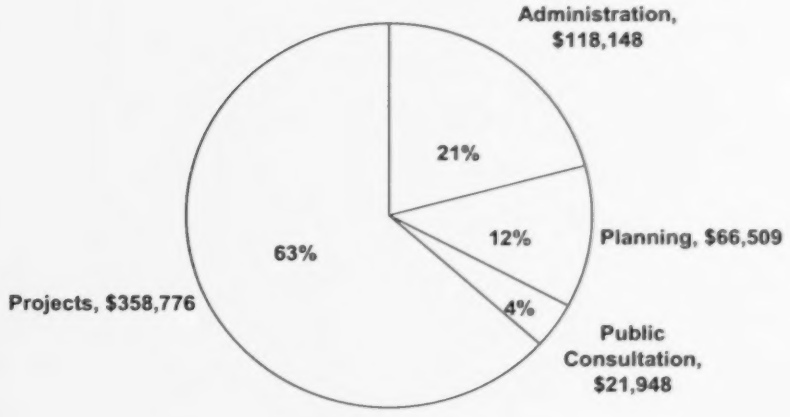


Figure 1. Fish Program expenditures for the 2001/02 fiscal year.

Table 1. Detailed Fish Program budget expenditures for the 2000/2001 fiscal

COST CATEGORY	TASK	SPECIFIC PROJECT	PROJECT COSTS	TOTAL EXPENDED	% EXPENDED	% BUDGETED
Administration	Base 01		118148	$118,148	21%	17%
Planning	Base 02		66509	$66,509	12%	11%
Public Consultation	Base 03		21948	$21,948	4%	7%
Projects			358776	$358,776	63%	65%
	01-01	Project Maintenance	9336			
	01-02	Stocking Program	28480			
	01-03	Report Writing (Previous Years)	20754			
	01-04	Classroom Kokanee	11744			
	01-05	Dinosaur Reservoir Aquatic Plant Transplant	41862			
	01-06	Table & Anzac Arctic Grayling Project	79877			
	01-07	Gething Bull Trout Evaluation	9222			
	01-08	Dina Lake #1 Pygmy Whitefish Study	41354			
	01-09	Finlay Reach Bull Trout	53192			
	01-10	Small Lake Stocking Evaluations	22025			
		SEFP costs	40930			
		Total	565380	$565,380		$605,000

Project Costs: includes operational costs, staff wages and travel, equipment & supplies, and vehicle costs.
Administration: includes staff wages, office rent, BCE administrative support, office supplies, vehicle costs.
Planning: includes staff wages & travel, Technical Committee travel, vehicle costs.
Public Consultation: includes staff wages & travel, vehicle costs, BCH activities (Natureline etc.)

Strategic Entrenchment Fund Projects

COST CATEGORY	TASK	SPECIFIC PROJECT	PROJECT COSTS	TOTAL EXPENDED	% EXPENDED	BUDGETED
	01-11	Stream Access Improvements	20045			
	01-12	Fish Resource Catalogue	35			
	01-13	Arctic grayling Action Plan	1605			
	01-14	Omineca Adult Grayling Distribution	10402			
	01-15	Distribution of Grayling Fry in the Omineca River	34000			
	01-16	UNBC Grant	0			
	01-17	Stocking History Review	300			
	01-18	Temperature Monitoring	36500			
	01-19	Equipment entrenchment fund	237000			
		Total	339887	$339,887		$358,300

Note: Stream temperature monitoring the temperature sensors will not be installed until spring 2002 so the actual final invoice will be charged against 2002/2003 accounts

WILDLIFE PROGRAM

Mari D. Wood

2001/02 PROJECT LIST

	PROJECT	TASK #	LOCATION
WILDLIFE BASE PROJECTS			
1	Fisher Habitat Use Project	01-01	Omineca
2	Mackenzie Migratory Songbird Monitoring (Co-op Project[1])	01-02	Parsnip
3	Ingenika Prescribed Burn	01-03	Finlay
4	Snow Depth Monitoring Stations	01-04	Watershed
5	20 Mile Point Stone's Sheep	01-05	Peace
6	Neonatal Ungulate Selection	01-06	Peace
7	McLeod Lake Grizzly Bear Behaviour	01-07	Parsnip
8	Cottonwood Tree Enhancement Trial	01-08	Parsnip
9	Enhancement Monitoring	01-09	Parsnip
10	Nabesche Goats & Licks	01-10	Peace
11	Data Analyses/Report Writing	01-11	Office
12	Wildlife Extension	n/a	Office/Watershed
STRATEGIC ENTRENCHMENT FUND (SEF) PROJECTS			
13	SEF Project Planning	SEF-W01	Office
14	Capital Expenditures	SEF-W02	Office
15	Parsnip Black Bear Population Estimate (Co-op Project[1])	SEF-W03	Parsnip
16	Mugaha Marsh Enhancement	SEF-W04	Parsnip
17	Ospika Goat/Mineral Lick Project	SEF-W05	Finlay

[1] "Co-operative Projects" are projects that are administered and conducted by other agencies, but funded by the PWFWCP.

Abbreviations used for Agencies/Clubs:

Agencies and clubs that are partners on PWFWCP projects are listed in brackets [ ] at the end of each project's objective.

ABIT: Abitibi Consolidated (Mackenzie)
CWS: Canadian Wildlife Service
DU: Ducks Unlimited
FRBC: Forest Renewal B.C.
HCTF: Habitat Conservation Trust Fund
MNO: Mackenzie Nature Observatory
MOF: Ministry of Forests
MWLAP: Ministry of Water, Land & Air Prot'n
SG: Slocan Mackenzie Operations

PROJECT NAME & TASK NUMBER

01-02 Mackenzie Migratory Bird Monitoring
01-03 Ingenika Prescribed Burn
01-04 Snow Depth Monitoring Stations (*)
01-05 20 Mile Point Stone's Sheep
01-06 Neonatal Ungulate Selection
01-07 McLeod Lake Grizzly Bear Behaviour
01-08 Cottonwood Tree Enhancement Trial
01-09 Enhancement Monitoring & Maintenance
01-10 Nabesche Goats and Licks
SEF-W05 Ospika Goat/Mineral Lick

PROJECT SUMMARIES

1. FISHER HABITAT USE PROJECT (#01-01)

Project Objective: To obtain a better understanding of fisher ecology and population dynamics in the sub-boreal forests that will lead to the design and implementation of future enhancement and protection activities. [PWFWCP, FRBC, MWLAP, SG, ABIT]

2001/02 (Year 6 of 5): Data collected in the 5th and final year of the study (00/01) were analysed, and work on the final 5-year project report was initiated. The final report will be completed in 2002/03.

2. MACKENZIE MIGRATORY BIRD MONITORING (CO-OP PROJECT) (#01-02)

Project Objectives: To determine the population status and trends of neotropical migratory songbird populations in the northern Rocky Mountain Trench, and to identify those species that may be at risk from habitat loss and degradation. This is a long-term initiative of the Canadian Wildlife Service to monitor trends of songbird populations throughout North America, to which the PWFWCP contributes annual funding support. [CWS, MNO, PWFWCP, SG, ABIT]

2001/02 (Yr 7of ongoing): The mist-nets and banding station at Mugaha Marsh were re-established, and a master bander was hired for the fall migration season. Volunteers from the Mackenzie Nature Observatory, other organizations and the general public provided assistance on a full-time basis. Capture and banding took place between mid-July and mid-September. The PWFWCP once again provided funding support for this co-operative project.

3. INGENIKA PRESCRIBED BURN (#01-03)

Project Objectives: To enhance forage for ungulates and bears, and to provide foraging and breeding habitat for many wildlife species that require early seral habitats. [PWFWCP, HCTF, MWLAP, MoF]

2001/02 (ongoing): Pre-burn planning meetings were held with MoF, and site inspections were conducted. A contract was awarded to oversee the burn activities. Phase II of the proposed burn area was targeted for burning in early fall; safety and guard permeability concerns along the northern perimeter were addressed. About 30 ha was burned on September 17. A report on the 2001 burn activities was prepared.

4. SNOW DEPTH MONITORING (#01-04)

Project Objectives: To monitor snow depth trends at representative sites within the Williston Reservoir watershed that will provide baseline snow depth data and aid in the identification of important ungulate winter ranges. [PWFWCP]

2001/02 (Year 4 of ongoing): Dataloggers from 6 remote weather stations throughout the watershed were collected and downloaded. Dataloggers were re-established at the same sites in fall 2001: Squawfish Lake, Manson River, Ingenika River, Ospika River (low and high elevations), and Aylard Creek. Data from the winter of 01/02 will be retrieved and downloaded in the summer of 2002.

5. 20 Mile Point Stone's Sheep (#01-05)

Project Objectives: To define the winter tick infestation in Stone's sheep wintering at low elevation on 20 Mile Point, north side of the Peace Arm, including determination of the cause of the problem, and the extent to which it affects herd health and productivity. [PWFWCP, MWLAP Victoria]

2001/02 (Year 4 of 5): A contract to monitor the movements of 20 (18 female, 2 male) adult radio-collared Stone's sheep captured between 1999 and 2001 was awarded; aerial telemetry was conducted throughout the year with a focus on range and habitat use during spring and fall. Production of lambs by collared ewes was monitored in June, and surveys to monitor lamb survival were conducted in August, December and March. Thirteen of the 20 collared sheep were re-captured and re-examined for winter tick loads in March/April 2002; tick loads were found to be minimal. Re-capture of low elevation sheep from 20 Mile Point and Branham Slide was conducted with the use of volunteers.

6. Neonatal Ungulate Selection (#01-06)

Objectives: To identify neonatal ungulate selection by wolves in the north Peace Arm multi-prey system. [PWFWCP]

2001/02 (Year 3 of 4): A contract for aerial monitoring of 9 radio-collared wolves captured during the winters of 2000 and 2002 was awarded. Wolves were searched for biweekly throughout the spring/summer denning period, then monthly thereafter if they remained within the north Peace Arm study area (aerial monitoring was conducted in conjunction with the 20 Mile Point Stone's Sheep Project). Six of the 9 collared wolves were periodically located between April and October, however, no den sites were found. Two of the 6 wolves died by October. No wolves were located in the study area over the winter. Scats collected from 2 dens located last year (00/01) will be analysed in 02/03, and a summary report on the project will be prepared.

7. McLeod Lake Grizzly Bear Behaviour (#01-07)

Objectives: To classify the behaviour of individual grizzly bears (and by extension, the behaviour by age, sex, and reproductive status), into bears that become a threat to humans after closure of a landfill, and bears that do not. To assist with improving the decisions made by the Conservation Officer Service (COS) of when and which bears to remove from landfill sites, and which bears to ignore and let live. [PWFWCP, MWLAP].

2001/02 (Year 2 of 3): Year 2 marked the first year of data collection after closure of the McLeod Lake landfill in the winter of 00/01. Limited trapping occurred in spring and fall in an attempt to re-capture and re-fit previously tagged bears with new transmitters. Weekly aerial monitoring of the movements and habitat use of 12 radio-tagged bears (initially captured at the McLeod Lake landfill in 2000) continued between den emergence (April) and den entry (November/December). Visits to the old landfill site by radio-tagged bears were monitored by a remote radio-telemetry datalogger at the landfill. Den sites used by radio-tagged bears over the winter of 00/01 were investigated. Four bear mortalities occurred this year, 2 of which appeared to be directly related to closure of the landfill (the bears sought out alternative garbage sources). A progress report on Year 1 (00/01) was completed.

8. COTTONWOOD TREE ENHANCEMENT TRIAL (#01-08)

Objectives: To develop enhancement methods to increase the suitability of mature cottonwood trees for secondary cavity-using wildlife. Specifically, create access routes to internal heartwood decay chambers within the bole of large diameter trees. [PWFWCP]

2001/02 (Year 1 of 1): Due to preliminary findings from field assessments, this project was deferred to next fiscal. The project will be re-designed to determine if access routes created through the outer sapwood will hasten the establishment of heartrot, and result in the creatior of internal chambers that are useable by wildlife.

9. ENHANCEMENT MONITORING AND MAINTENANCE (#01-09)

Objectives: To conduct assessments of vegetative response and wildlife use at areas previously treated to enhance ungulate forage, to maintain waterfowl nesting structures at wetland enhancement sites, and to maintain signs at PWFWCP interpretative sites. [PWFWCP]

2001/02 (Year 1 of 1): Forage enhancement sites were assessed and wetland enhancement were maintained. Signs were retrieved but reproduction of new signs was deferred to 02/03 due to new requirements and staffing constraints.

10. NABESCHE GOATS AND LICKS (#01-10)

Objectives: To improve the distribution of minerals and therefore mountain goats, in the Nabesche River drainage. [PWFWCP]

2001/02 (Year 4 of 4): In summer 1999, artificial mineral licks were established throughout the Nabesche River drainage at 10 treatment (Mt. Greene, Mt. Burden, and northwest of Mt. Brewster) and 3 control sites (Mt. Brewster). Sites were re-visited in summer 2001 to ascertain degree of use by mountain goats. All control sites were well used, however, only one of the 10 treatment sites received extensive use by goats (northwest Mt. Brewster site).

11. DATA ANALYSES/REPORT WRITING (#01-11)

Objectives: To analyse data and complete reports from previous fiscal projects. [PWFWCP]

2001/02 (Year 2 of ongoing): A number of reports from *previous* projects or inventories were drafted and/or completed in 01/02 (reports on *current* projects are discussed under project summaries elsewhere in this document):

- 1993 Russel Range Sheep and Goat Survey (*completed*)
- 1994 Snow Depth Survey (*completed*)
- 1996 Donna Creek Stubs, Residual Islands and Other Habitat Characteristics *(completed)*
- 1996 Donna Creek Cavity Nests *(completed)*
- 2000 Peace Arm Elk Survey (*completed*)

- 2001 Ingenika River Prescribed Burn (*completed*)
- 1998 Diversionary Feeding Project *(drafted)*
- 1998 Nabesche Goat Survey (*drafted*)

12. WILDLIFE EXTENSION

Objectives: To provide data and expertise on wildlife management issues and planning processes in BC. [PWFWCP]

2001/02 (Year 1 of ongoing): Input to various planning processes, wildlife management issues, and other wildlife research projects was provided throughout the year. The radio-frequency database for the Omineca Region was maintained and updated regularly.

01/02 STRATEGIC ENTRENCHMENT FUND PROJECTS

13. SEF PROJECT PLANNING (SEF-W01)

Project Objectives: To develop strategic direction for the expenditure of SEF funds over the next 2-3 years. [PWFWCP]

2001/02 (Yr 1 of 1): The 3-day planning workshop involving outside participation was deferred. Planning was initiated for the Ospika Goat/Mineral Lick Study (see details under SEF-W05 below).

14. CAPITAL EXPENDITURES (SEF-W02)

Objectives: To purchase field and office equipment that will enable staff to conduct activities more efficiently, provide greater latitude in project deliverables, and provide flexibility in project start-up. [PWFWCP]

2001/02 (Yr 1 of 1): Field equipment including remote data acquisition systems and radio-telemetry equipment was purchased.

15. PARSNIP BLACK BEAR POPULATION ESTIMATE (SEF-W03)

Objectives: To produce a population estimate for black bears in the Parsnip drainage, to facilitate interpretation of the results of MWLAP's Diversionary Feeding Project (funded primarily by the PWFWCP), to assist with interpretation of the results of MWLAP's Parsnip Grizzly Bear Study, and to contribute to the development of DNA census techniques. [MWLAP, PWFWCP]

2001/02 (Yr 1 of 1): Black bear hair genetic analyses were completed, and a combined report on population estimates for grizzly (Parsnip Grizzly Bear Study) and black bears (this project) in the Parsnip drainage was completed.

16. MUGAHA MARSH ENHANCEMENT (SEF-W04)

Objectives: To re-establish the vegetation community and structure originally present at Mugaha Marsh in order to benefit the ongoing bird monitoring program and enhance the area for early seral wildlife. [MNO, PWFWCP]

2001/02 (Year 1 of 1): This project was deferred to 2002/03 due to delayed project approval and subsequent staffing constraints.

17. OSPIKA GOAT/MINERAL LICK STUDY (SEF-W05)

Objectives: To determine the impacts of different forest harvesting options on mountain goat behaviour related to low-elevation mineral licks and trails. [PWFWCP, SG, MWLAP]

2001/02 (Yr 1 of 6): Multiple planning meetings were held between PWFWCP, SG, and MWLAP to develop the study design for the Ospika Goat Study. A study plan for the project was drafted by PWFWCP in the winter of 01/02. A Mountain Goat Management Team (comprised of members of PWFWCP, MWLAP, SG, and MoF) was established to oversee the PWFWCP Ospika Goat Study, SG's broader watershed-wide goat study, and to address mountain goat management issues in the Mackenzie Forest District. In March 2002, 22 mountain goats were captured and fitted with VHF radio-collars, and remote telemetry stations were purchased. Telemetry stations will be established at mineral licks and along trails in spring 2002. The first official year of data collection is 2002/03.

WILDLIFE PROGRAM - FINANCIAL SUMMARY

The annual Wildlife Program budget in 2001/02 was $495,000 with an additional $30,650 in carry-over funds from the 2000/01 fiscal, resulting in a fiscal budget totalling $525,650. Expenditures in the 2001/02 fiscal year amounted to $483,974, 77% ($370,296) being expended on wildlife research, enhancement, and evaluation projects (Figure 2, Table 2). The total expenditures of $483,974 were 3% higher than budgeted for the actual projects conducted ($470,150). Significant underexpenditures on some budgeted projects and the deferral of other projects to 02/03 resulted in a cost savings of $55,500 which was carried over to the 02/03 fiscal.

Strategic Entrenchment Fund (SEF) expenditures in the 01/02 fiscal amounted to $257,256 (Table 3) leaving $543,152 remaining for expenditure in subsequent fiscal years (total SEF budget for the Wildlife Program was $800,408).

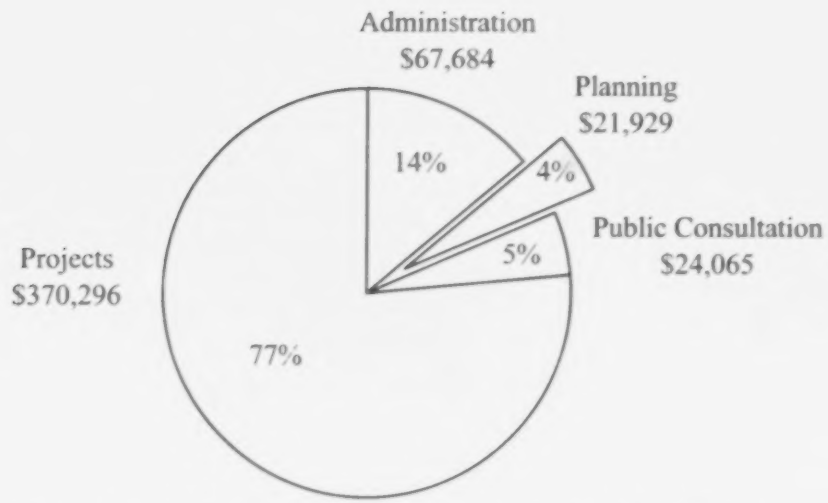


Figure 2. Wildlife Program expenditures in the 2001/02 fiscal

Table 2. Detailed Wildlife Program budget expenditures for the 2001/02 fiscal.

COST CATEGORY	TASK #	SPECIFIC PROJECT	PROJECT COSTS[1]	TOTAL EXPENDED	% Expended	% Budgeted
Administration[2]	01-B1	Base Costs	67,684	$67,684	14%	16%
Planning[3]	01-B2	Base Costs	21,929	$21,929	4%	6%
Public Consult[4]	01-B3	Base Costs	24,065	$24,065	5%	7%
Projects	01-01	Fisher Habitat Use Project	14,222			
	01-02	Mackenzie Migratory Bird (Co-op)	6,028			
	01-03	Ingenika Prescribed Burn	42,286			
	01-04	Snow Depth Monitoring	19,126			
	01-05	20 Mile Point Stone's Sheep	73,563			
	01-06	Neonatal Ungulate Status	16,155			
	01-07	McLeod Lake Grizzly Project	97,866			
	01-08	Cottonwood Tree Enhancement	9,202			
	01-09	Enhancement Monitoring	21,735			
	01-10	Nabesche Goats and Licks	7,097			
	01-11	Data Analyses/Report Writing[5]	38,484			
	01-12	Wildlife Extension[6]	7,392			
	n/a	Strategic Entrenchment Fund Projects[7]	17,140	$370,296	77%	71%
TOTAL				**$483,974**	**100%**	**100%**

[1] Project Costs: includes operational costs, staff wages and travel, equipment & supplies, and vehicle costs.
[2] Administration: includes staff wages, office rent, BCE administrative support, office supplies, vehicle costs.
[3] Planning: includes staff wages & travel, Technical Committee travel, vehicle costs.
[4] Public Consultation: includes operational costs, staff wages & travel, vehicle costs
[5] Data Analyses/Report Writing: includes consultant and staff wages for completion of previous project reports
[6] Wildlife Extension: includes staff wages for input to wildlife species and habitat protection/management activities, maintenance of collar database, and assistance on non-PWFWCP projects.
[7] Strategic Entrenchment Fund Projects: includes staff wages, travel, and vehicle costs associated with the Mugaha Marsh and Ospika Goat projects; see Table 3 for hard costs

Table 3. Strategic Entrenchment Fund (SEF) expenditures for the 2001/02 fiscal (hard costs only).

COST CATEGORY	TASK #	SPECIFIC PROJECT	PROJECT COSTS[1]	TOTAL EXPENDED	% Expended	% Budgeted
Planning	SEF-W01	SEF Project Planning	0			
	SEF-W02	Capital Expenditures	123,751	$123,751	48%	40%
Projects	SEF-W03	Parsnip Black Bear Popn Estimate	38,000			
	SEF-W04	Mugaha Marsh Enhancement	0			
	SEF-W05	Ospika Goat/Mineral Lick Study	95,505	$133,505	52%	60%
TOTAL				**$257,256**	**100%**	**100%**

[1] Project Costs: hard costs only (see Table 2 for staff wages and travel, minor equipment & supplies, and vehicle costs associated with the delivery of SEF projects).